STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISON OF PUBLIC HEALTH SERVICES

29 HAZEN DRIVE, CONCORD, NH 03301-6504
603-271-4477 1-800-852-3345 Ext. 4477
Fax: 603-271-0545 TDD Access: 1-800-735-2964

John A. Stephen
Commissioner

Mary Ann Cooney
Director

Status: **Health Update**
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Lyme Disease in New Hampshire – An Update

From: Health Alert Network- Division of Public Health Services, NH-DHHS

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NH Department of Health and Human Services (NH DHHS) recommends:

- Vigilance and prompt treatment for Lyme disease in patients with compatible clinical features
- Timely reporting of suspect and confirmed cases of Lyme disease to NH DHHS Communicable Disease Control and Surveillance Section at 603- 271-4496 (after hours 800-852-3345 ext. 5300).
- Patient education regarding prevention of tick bites

Over the last several years, The New Hampshire Department of Health and Human Services (NH DHHS) has observed an increase in the number of reported Lyme disease cases in NH residents. Several New England states have observed a similar increase in Lyme disease. Most cases of Lyme disease in NH are reported during the summer months, between June and August. Patients treated with antibiotics in the early stages of the infection usually recover rapidly and completely, therefore early diagnosis and treatment of Lyme disease is important.

See the NH Lyme Bulletin for additional information on the incidence of Lyme disease in NH (http://www.dhhs.state.nh.us/DHHS/CDCS/LIBRARY/Fact+Sheet/lyme-disease.htm).

Background: Lyme disease is a tick-borne disease caused by the spirochete *Borrelia burgdorferi*, and is characterized by a distinctive rash and systemic symptoms, with possible progression to neurologic, rheumatologic, and cardiac involvement if untreated. In New Hampshire, the deer tick (*Ixodes scapularis*), known to transmit Lyme disease to humans, is endemic. The likelihood of disease transmission increases with duration of time an infected tick is attached; if a tick is attached for fewer than 24 hours the chance of Lyme disease transmission is extremely small.

The incubation period for Lyme disease is 3-32 days after tick exposure. In approximately 70% of patients, illness first manifests with a red rash that expands slowly, often with central clearing (erythema migrans, EM). Early systemic manifestations may include malaise, fever, headache,

stiff neck, muscle and joint pains, and lymphadenopathy. Weeks to months after onset, a patient may develop neurologic abnormalities such as aseptic meningitis or cranial neuritis. Cardiac abnormalities such as heart block or rarely myopericarditis may also occur within weeks after illness onset. Weeks to years after onset, a patient may develop chronic or intermittent episodes of arthritis.

Diagnosis of Lyme disease is based on clinical findings supported by two-stage serologic testing, when appropriate. Treatment is based on age of patient and clinical manifestations.

Prevention: For prevention of tick-borne diseases, the public should be educated to avoid tick-infested areas when feasible, to wear light-colored clothing that covers arms and legs so ticks can be more easily seen, to tuck pants into socks and apply tick repellent to exposed skin, and after being outdoors to search the body for ticks and remove them promptly.

Reporting: In New Hampshire, the diagnosis of Lyme disease should be considered in a patient with relevant history, including possibility of tick exposure, and compatible clinical manifestations. Suspect or confirmed cases of Lyme disease should be reported to NH DHHS within 72 hours.

Confirmed case definition: a) a case with EM or b) a case with at least one late manifestation (as defined below) that is laboratory confirmed.

- *Erythema migrans*. For purposes of surveillance, EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach greater than or equal to 5 cm in size. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and do not qualify as EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.
- *Late manifestations*. Late manifestations include any of the following when an alternate explanation is not found:
    1. *Musculoskeletal system*. Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.
    2. *Nervous system*. Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *B. burgdorferi* in the CSF, evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement.
    3. *Cardiovascular system*. Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

Laboratory confirmation (required in absence of EM):

- Isolation of *Borrelia burgdorferi* from a clinical specimen or
- Demonstration of diagnostic immunoglobulin M or immunoglobulin G antibodies to *B. burgdorferi* in serum or cerebrospinal fluid (CSF). A two-test approach using a sensitive enzyme immunoassay or immunofluorescence antibody followed by Western blot is recommended.

For additional information on Lyme disease incidence, diagnosis, and treatment, please visit the following websites:

http://www.dhhs.state.nh.us/DHHS/CDCS/LIBRARY/Fact+Sheet/lyme-disease.htm

http://www.cdc.gov/ncidod/dvbid/lyme/index.htm

Status Categories of Health Alert messages:

Health Alert: conveys the highest level of importance; warrants immediate action or attention.

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